REMARKS

Claims 1 and 10-12, are pending and appear in this application for the Examiner's review and consideration. Claims 2 has been incorporated into claim 1. Claims 3-6 and 8-9, directed to non-elected subject matter, have been cancelled, while claims 7 and 13-21 are currently withdrawn from consideration in view of the restriction requirement. Claim 1 is amended for clarity and to emphasize distinctions over the prior art. Claims 7, 10, 17 and 21 have been amended to correct informalities, to incorporate the features of claim 1 and to eliminate non-elected subject matter. The specification is amended to correct informalities. Support for the amendments is found in the original claim and specification. As no new matter is introduced, Applicants respectfully request that the amendments be entered at this time.

Specification/Claim Objections

The Examiner objected to the specification for the informalities noted on pages 3-4 of the Office Action. In response, pages 9, 14, 17-18, and 22 of the specification have been amended to correct the informalities and for clarity. In response to the Examiner's objections to claims 1 and 10 for informalities, appropriate corrections have been made in these claims.

Accordingly, all the objections to the claims and specification should be withdrawn.

Claim Rejections -- 35 U.S.C. § 101

Claims 1 and 2 are rejected under 35 U.S.C. § 101 for being directed to a non-statutory subject matter. In response, these claims are amended to recite "synthetic polypeptide" as the Examiner recommended. Support for this amendment is found throughout the specification, for example on page 10, lines 8-10 and page 33, Example 1.

Therefore, the claim rejection under 35 U.S.C. § 101 should be withdrawn.

Claim Rejection -- 35 U.S.C. § 112, First Paragraph

Claim 2 was rejected under 35 U.S.C. § 112, first paragraph, for the reasons stated on pages 5-6 of the Office Action. In response, claim 2 has been cancelled but its wording was amended to recite that the functional analogues of SEQ ID NO:1 comprise an amino acid sequence as set forth in SEQ ID NO:1, having at least one amino acid substituted by a natural or synthetic amino acid and having a haptotactic activity. The amended claim 2 language was also added to claims 1, 10, 17 and 21, and these independent claims therefore recite the

structural characteristics of the functional analogues. Support for this amendment is found, for example, on page 18, line 11 to page 19, line 2 ("Hereinafter, the term "haptotactic peptide" refers to peptides . . . having a sequence selected from the group consisting of KGSWYSMRKMSMKIRPFFPQQ [(SEQ ID NO:1)], KTRWYSMKKTTMKIIPFNRL [(SEQ ID NO:2)] [and] RGADYSLRAVRMKIRPLVTQ [(SEQ ID NO:3)]; as well as to analogues, derivatives, equivalents or peptido-mimetics thereof, displaying substantially identical or similar functional activity as one of the above-listed sequences"; *see also* p. 14, lines 1-4).

Thus, the amended claims do in fact specify the structural parameters for the claimed polypeptide, and the rejection under 35 U.S.C. § 112, first paragraph, should be withdrawn.

Claim Rejections -- 35 U.S.C. § 112, Second Paragraph

Claims 2 and 10-12 are rejected under 35 U.S.C. § 112, second paragraph, for the reasons set forth on pages 6-7 of the Office Action.

In response, the wording of claim 2 has been revised for definiteness and clarity and is now added to claim 1. In particular, amended claim 1 clarifies that the amino acid substitution is based on SEQ ID NO:1 and that the claimed synthetic polypeptide comprises an amino acid sequence set forth in SEQ ID NO:1 or functional analogues thereof, which comprise an amino acid sequence of SEQ ID NO:1 with at least one amino acid substituted by a natural or synthetic amino acid. Support for the amendments is found, for example, on page 13, line 11 to page 14, line 4 of the specification (the term "peptide" defined to include both a chain of amino acids and, among others, analogues thereof, including analogues having synthetic and natural amino acids).

Claim 10 has been amended to eliminate the non-elected subject matter relating to SEQ ID NOs: 2 and 3 and to add the feature of the functional analog as in claim 1. Withdrawn claims 7 and 21 have been revised in similar fashion.

Accordingly, all the rejections based on 35 U.S.C. § 112, second paragraph, should be withdrawn.

Claim Rejections -- 35 U.S.C. § 102

Claims 1-2 and 10-11 are rejected under 35 U.S.C. § 102(b) as being anticipated by K. W. K. Watt et al., *Biochemistry* 18, 68-76 (1979) ("Watt"). Applicants respectfully traverse.

Watt discloses the complete amino acid sequence of the β-chain of human fibrinogen. Relating only to identification of the amino acid sequence of the fibrinogen β-chain, this reference fails to teach, disclose or suggest the isolated peptides as recited in the present claims. Further, because Watt merely identifies the amino acid sequence of the full-length fibrinogen β-chain, it fails to recognize or suggest haptotactic activity of certain isolated peptides.

In contrast to the mere description of the fibrinogen β-chain amino acid sequence of Watt, the present invention relates to haptotactic peptides with novel amino acid sequences which are featured within the carboxy termini of fibrinogen. Thus, the present invention provides, for example, a synthetic peptide comprising an amino acid sequence set forth in SEQ ID NO:1 and functional analogues thereof. Advantageously, these isolated peptidic sequences retain desirable properties exhibited by the entire fibrin molecule such as haptotaxis, and therefore are highly useful in providing haptotactic activities without requiring the presence of the entire fibrin molecule (*see, e.g.,* specification at p. 17, lines 6-12; p. 23, lines 15-19).

Hence, Watt, which merely identifies the amino acid sequence of the fibrinogen β-chain, cannot anticipate the present haptotactic peptides. Furthermore, in the interest of expediting the prosecution of this application, claim 1 has been amended to specifically recite that the claimed "synthetic haptotactic" polypeptide is "other than an entire fibrinogen β-chain." The amended claims emphasize the critical difference between the full-length fibrinogen β-chain disclosed in Watt and the present polypeptide.

Accordingly, Watt does not anticipate present claims 1 and 10-11, and the rejection of these claims over Watt should be withdrawn.

Claims 1-2, 10 and 12 are rejected under 35 U.S.C. § 102(b) as being anticipated by International Publication No. WO 95/23868 ("Garner"). Garner, however, discloses only the production of fibrinogen in transgenic non-human mammals, referring to the DNA sequence of the complete fibrinogen α, β and γ chains. Thus, Garner, like Watt, relates only to the full-length fibrinogen β-chain and fails to disclose or suggest the specific isolated peptides or their advantageous properties as recited in the present claims. Therefore, the rejections based on Garner should also be withdrawn, especially in view of the claim amendments that exclude the full-length fibrinogen β-chain as explained above.

Likewise, the rejection of claims 1-2 and 10-12 under 35 U.S.C. § 102(b) as being anticipated by J. Koopman et al., *Proc. Natl. Acad. Sci. USA* 89, 3478-3482 (1992) ("Koopman") should also be withdrawn. Koopman relates to the finding of an unusual

fibrinogen with a mutation in the β-chain that leads to the substitution of arginine by cystein, which permits the mutant fibrinogen to cross-link with albumin and form high molecular weight complexes.

As explained with respect to Watt and Garner, mere disclosure of a fibrinogen protein comprising Bβ chain and its sequence does not anticipate the present haptotactic peptides that are derived to include a specific amino acid sequence such that the peptides provide haptotactic cellular effects without requiring the presence of the entire fibrin molecule. Accordingly, the § 102 rejections based on Koopman should also be withdrawn.

Therefore, Applicants respectfully request that all claim rejections under 35 U.S.C. § 102 be withdrawn.

Accordingly, independent claims 1 and 10 are now believed to be in condition for allowance. That being the case, independent claims 17 and 21 also recite this allowable subject matter. For this reason, the restriction requirement should be withdrawn so that all current claims should be allowed.

In view of the preceding, it is believed that the entire application is in condition for allowance, early notification of which would be appreciated. Should the Examiner not agree with this position, a telephone or personal interview is requested to resolve any remaining issues and expedite allowance of this application. Please call the undersigned to expedite the allowance of all claims in this application.

Respectfully submitted,

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